

Remarks

Claims 59-62 and 64-65 are pending after entry of this amendment. Claim 63 is canceled herein without prejudice. Claims 59, 64 and 65 are amended herein to more distinctly claim the invention. Claims 1-58, and 66-87 have previously been canceled. Support for these amendments can be found in the original claim language and throughout the specification, as set forth below. It is believed that these amendments add no new matter. In light of these amendments and the following remarks, applicants respectfully request reconsideration of this application, entry of these amendments and allowance of the claims to issue.

Applicants would like to thank Examiner Wilson for his courtesy and insights in the telephone interview with applicants on August 25, 2005. Pursuant to the telephone interview, applicants have amended independent claims 59, 64 and 65 by adding the definition of the term “native embryo” to make clear that the claimed egg indeed comprises an embryo that develops from the fertilization of an ovum inside the same shell that was deposited around the female pronucleus as it passed through the reproductive tract of a female bird before the egg was oviposited (laid), the act of fertilization occurring after the unfertilized egg is oviposited. In other words, “native embryo” is limited to an embryo that develops in and hatches from the same shell in which the female pronucleus used to make the embryo was formed.

35 U.S.C. § 112, first paragraph

Applicants acknowledge the withdrawal of the rejection of claims 59-62 and 64-65 under 35 U.S.C. § 112, first paragraph, based on alleged failure to comply with the written description requirement.

35 U.S.C. § 112, second paragraph

Claims 59, 64 and 65 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Specifically, the Office Action states that the phrase “native embryo” is indefinite because it is a relative term and that the claim does not state to what the embryo or yolk is native. The Office Action goes on to state that a “native embryo” encompasses an “embryo that develops and hatches in the same shell in which the female pronucleus was formed.” The Office Action states that the sentence is not the only one describing the concept of

“native embryos” and does not limit the definition to “embryos that develop and hatch in the same shell in which the female pronucleus was formed.” The Office Action goes on to state that the sentence describing “native” must also be considered, i.e., “native means growing, living or produced in its place of origin.” The Office Action alleges that the definition also includes an embryo that hatches from an embryo transplant, recipient shell because it grows and lives in the shell and is hatched from the shell. The Office Action also alleges that the transplant, recipient shell may also be considered the embryo’s “place of origin” because it is the place from which the bird hatches and is born from.

The Office Action states that the Examiner would consider withdrawal of the rejection if applicants concede that the phrase was intended to be limited to “embryo that develops and hatches in the same shell in which the female pronucleus was formed” but has a broader meaning because of the way “native” is more broadly defined.

Claim 63 is canceled herein without prejudice, thereby rendering moot this rejection as it applies to claim 63. Therefore, applicants respectfully request withdrawal of this rejection.

Claims 59, 64 and 65 are amended herein according to the Examiner’s suggestion by adding the phrase “wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed.” Support can be found in the specification on page 11, line 28 to page 12, line 1. While applicants maintain that the meaning of “native embryo” does not change by inclusion of this phrase, the phrase is added to provide certainty for the Examiner. Specifically, this added phrase clarifies that “native embryo” does not include (1) an embryo that has been removed from its shell and put into a new shell in which it later is hatched; (2) a fertilized ovum transferred into the birth canal of a chicken, passed through the female reproductive system so that a shell forms, laid and hatched; and (3) an embryo that develops from an oviposited oocyte removed from its shell and put into culture medium. Applicants believe that the amendment of claims 59, 64 and 65 overcomes this rejection and respectfully request the withdrawal of this rejection and allowance of amended claims 59, 64 and 65 and dependent claims 60-62.

35 U.S.C. § 102

A. Claims 59-65 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Tanaka *et al.* (1994, *J. Reprod. Fert.*, Vol. 100, pg 447-449). The Office Action states that Tanaka *et al.* taught an oviposited chicken egg comprising a fertilized ovum (pg 447, col. 2, "Materials and Methods;" pg 448, Fig. 1) made by transferring a day-old fertilized ovum into the birth canal of the chicken. The Office Action also states that a shell formed around the fertilized ovum as it passed through the recipient hen's reproductive system; the egg was laid on the day following the transfer (pg 448, col. 1 line 4); and a chick hatched (pg 448, col. 2, first full paragraph, line 9). The Office Action goes on to state that the egg is oviposited as claimed because a shell forms around it and is passed through the birth canal. The Office Action states that the day-old fertilized ovum had less than 10,000 cells as claimed because a zygote is one cell. The Office Action goes on to state that the embryo is "native" as claimed because it grows, lives and hatches from the egg shell that forms around it in the female reproductive tract.

Further, the Office Action states that the shell that forms around the fertilized ovum (underline added) is the embryo's "place of origin," as used in the description of "native embryos" in the specification in the sentence bridging pages 11-12 because the shell is the place in which the embryo grows, lives and hatches. The Office Action states that a "native embryo" is not limited to an embryo that develops and hatches in the same shell in which the female pronucleus was formed as in the sentence bridging pages 11-12. The Office Action asserts that the definition of "native" on page 11, lines 27-29, is broader and encompasses any embryo growing, living or produced in its place of origin. The Office Action states that the embryo of Tanaka is growing, living and hatches from a shell that forms around the embryo (underline added) in the female reproductive tract; the shell that forms around the embryo (underline added) in the female reproductive tract is the embryo's "place of origin;" thus, Tanaka meets all the limitations of the claims.

Claim 63 is canceled herein without prejudice, thereby rendering moot this rejection as it applies to this claim. Therefore, applicants respectfully request withdrawal of this rejection.

Claims 59, 64 and 65 are amended herein by adding the phrase, "wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed," to more clearly define "native embryo." This phrase clearly distinguishes the

claimed invention from Tanaka *et al.* Applicants also concede that the term “native embryo” does not include an embryo (a fertilized ovum) transferred into the birth canal of a chicken, passed through the female reproductive system so that a shell forms, laid and hatched

Tanaka *et al.* teaches that an unfertilized ovum, removed from a donor hen, can be fertilized *in vitro* and then transferred after about 15 minutes into the infundibulum (upper part of a hen’s reproductive tract) of a recipient hen and then migrate down the tract over a day’s time to be laid in a shell that develops in the recipient hen around the fertilized ovum, and then incubated to produce a live chick.

The laid, fertilized egg in a shell in Tanaka *et al.* traveled the length of the oviduct in the recipient hen and that the approximate 24 hours that the egg traveled through the oviduct was the same time that a naturally fertilized egg in a hen would take to travel to the vagina to be oviposited (laid). Thus, as is well known in the art, the laid egg in Tanaka *et al.* had at least 30,000-60,000 cells. In contrast, the claimed invention comprises an embryo having fewer than 30,000 cells.

Further, the Office Action misreads the reference when it alleges that Tanaka *et al.* taught an egg that “had less than 10,000 cells as claimed because a zygote is one cell.” In fact, Tanaka *et al.* showed that a zygote made by *in vitro* fertilization could be transferred into the infundibulum of a recipient hen and then develop into an embryo as it traveled down the oviduct. The zygote was not in a laid egg in a calcified shell; rather, it was in the upper part of a hen oviduct. Then, by the time the egg of Tanaka *et al.* was actually laid, it would contain over 30,000 cells. Thus, for this additional reason, Tanaka *et al.* cannot anticipate the claims.

Tanaka *et al.* does not teach an oviposited avian egg from which a live chick can hatch, comprising a shell and a native embryo, wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed, and wherein the embryo has fewer than 30,000 cells and can develop in the shell and hatch as a live chick. Thus, claims 59-62 and 64-65 are not anticipated. Applicants, therefore, respectfully request withdrawal of this rejection and allowance of claims 59-62 and 64-65.

B. Claims 59-65 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Johnston (1998, *Poultry Science*, Vol. 77, page 142). Specifically, the Office Action states that Johnston taught an oviposited oocyte with a shell used for fertilization by injecting sperm onto

the oocyte, which is equivalent to an oviposited chicken egg as claimed. The Office Action goes on to state that the fertilized oocyte is equivalent to an embryo or zygote as claimed and is less than 10,000 cells as claimed because it is one cell that proliferates. The Office Action goes on to state that the fertilized oocyte is an “egg from which a live chick can hatch” because the fertilized oocyte proliferates. The Office Action goes on to state that without evidence to the contrary, the egg can hatch. The Office Action further states that the limitation “from which a live chick can hatch” does not distinguish the structure of the claimed egg from the structure of the egg described in Johnston.

The Office Action states that the embryo proliferating in a culture system described by Johnston is a “native” embryo because it is growing in its place of origin. The Office Action goes on to state that the embryo of Johnston is “native” because it grows in a culture medium which is “its place of origin” because fertilization took place in culture medium.

Claim 63 is canceled herein without prejudice, thereby rendering moot this rejection as it applies to this claim. Therefore, applicants respectfully request withdrawal of this rejection.

Claims 59, 64 and 65 are amended herein by adding the phrase, “wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed,” to more clearly define “native embryo.” Applicants also concede that the term “native embryo” does not include an embryo that develops from an oviposited oocyte removed from its shell and put into culture medium.

The Office Action errs when it alleges that the egg in Johnston is “equivalent to an oviposited chicken egg as claimed.” See Office Action, page 6, last paragraph. Johnston (the cited abstract) does not teach an oviposited avian egg from which a live chick can hatch, comprising a shell and a native embryo, wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed, and wherein the embryo has fewer than 30,000 cells and can develop in the shell and hatch as a live chick.

Johnston (“In Vitro Sperm Binding, Penetration, and Fertilization of Recently Oviposited Chicken Eggs,” Thesis, Graduate School of Clemson University, December, 1998) (Reference “AM,” cited in Form PTO-1449 of the Information Disclosure Statement) corresponds to and elaborates on the abstract. Johnston teaches the fertilization of an oocyte after it has been removed from the shell and separated from the thin and thick albumen enclosing it and adherent

to it. See Johnston thesis, page 22. Specifically, the ovum/yolk was placed in a sterile beaker containing sterile Dulbecco's Phosphate Buffered Saline (D-PBS). "Thin albumen was isolated from thick albumen by filtration through sterile cheesecloth. The thin albumen was saved for use as a supplement in the culture media." See page 22, Chapter 3, first paragraph of the thesis. The thick albumen was not used. Johnston further states that "yolks were placed in individual weigh boats with the blastodisc in the dorsal position. Kimwipes® were used to gently blot the blastodisc area free of any adherent albumen." (Underline added; see thesis, page 23, bottom paragraph.)

In Johnston, the unfertilized oocyte was not in a shell; instead, it was in a weigh boat, devoid of thin and thick albumen. In contrast, a person of skill would know that the claimed oviposited egg comprising a shell and a native embryo has both thin and thick albumen in contact with the ovum/yolk.

Johnston removed the shell and discarded thick albumen and blotted off remaining adherent albumen from the blastodisc region to facilitate delivery of sperm to the blastodisc region. Removing the albumen apparently was carried out to allow Johnston to have unimpeded access to the OPL in order to hydrolyze the OPL with 0.01 N HCl, thereby facilitating sperm penetration of the OPL to fertilize the ovum. Further, Johnston teaches that the *in vitro* fertilized oocytes were subsequently cultured in a medium of thin egg albumen and sterile PBS (see thesis, page 26, bottom paragraph). Therefore, Johnston created a composition of matter that is structurally very different from the claimed egg.

The Johnston method only alleges fertilization of an egg that was removed from the shell and separated from thin and thick albumen and cultured *in vitro*. It is clear that Johnston did not place any of the embryos back into egg shells and did not add thin and thick albumen into the shell. Therefore, Johnston cannot anticipate the claimed invention.

The pending claims also require that the embryo has fewer than 30,000 cells and can develop in the shell and hatch as a live chick. The Office Action states that the embryos created by Johnston can hatch as a live chick. This conclusion is not supported by any of the art cited in the Office Action. Indeed, the art cited in the Office Action specifically does not support this notion since Johnston, as is clear from the Johnston Thesis, was only able to create very early *in vitro* embryos when the goal was to create and develop avian embryos. Indeed the Johnston

abstract states “[w]e are developing a system to *in vitro* fertilize, and develop avian embryos from recently oviposited eggs” (emphasis added). The Johnston abstract and the Johnston Thesis on pages 39-43 and Table 3 show that Johnston was only able to create very early embryos that ceased to proliferate. This is in contrast to applicants’ claimed invention where the embryos develop in the shell and hatch as a live chick.

Thus, Johnston does not anticipate the claimed invention and removal of the rejection on this basis is respectfully requested.

C. Claims 59-65 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Naito (1990, *J. Exp. Zoo.*, Vol. 254, pages 322-326). Specifically, the Office Action states that Naito isolated a chicken embryo 2.5-2.75 hours after fertilization from the reproductive tract of a chicken and that the embryo was transferred into an eggshell with a hole drilled in it, incubated and hatched. The Office Action goes on to state that the embryo is a zygote because it is less than three hours old and that the egg is an “oviposited egg” because the egg has “a calcium carbonate shell that has been extruded from the vagina of a bird,” as defined in the specification. The Office Action goes on to state that the embryo is “native” because it is in a shell from which it hatches, i.e., its “place of origin” and that the embryo is “native” to the recipient shell because the shell is the place in which the embryo grows, lives and hatches.

Claim 63 is canceled herein without prejudice, thereby rendering moot this rejection as it applies to this claim. Therefore, applicants respectfully request withdrawal of this rejection.

Claims 59, 64 and 65 are amended herein by adding the phrase, “wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed,” to more clearly define “native embryo.” This definition clearly distinguishes the claimed invention from Naito. Specifically, the embryo of Naito was taken from a donor bird’s reproductive tract prior to a shell being deposited around it. That shell, had it been deposited in the donor bird’s reproductive tract, would have been the shell that formed around the female pronucleus. However, the shell in Naito is a recipient shell from another bird in which the claimed female pronucleus did not form.

Further, as noted above in the argument regarding indefiniteness, applicants concede that a “native embryo” is not an embryo that has been removed from its shell and put into a new shell in which it later is hatched. Therefore, applicants believe that this rejection is overcome and

respectfully request withdrawal of this rejection and allowance of amended claims 59, 64-65 and dependent claims 60-62.

35 U.S.C. § 103

Claims 59-65 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Johnston (1998 *Poultry Science*, Vol. 77, page 142) in view of Goldberg (1992, *Ped. Research*, Vol. 32, pages 23-26). Specifically, the Office Action states that Johnston injected sperm onto an oviposited oocyte that had been removed from its shell. The Office Action alleges that the oviposited oocyte is equivalent to an oviposited chicken egg as claimed. The Office Action states that the fertilized oocyte is an “egg from which a live chick can hatch” because the fertilized oocyte proliferates. The Office Action goes on to state that the egg proliferating in a culture system described by Johnston is a “native” embryo as claimed because it is growing in its place of origin. The Office Action goes on to state that the embryo of Johnston is “native” because it grows in a culture medium, which is “its place of origin” because fertilization took place in culture medium. The Office Action admits that Johnston did not teach injecting sperm onto the oocyte in the shell from which it came as described in the instant application.

The Office Action states that Goldberg taught injecting five solutions into eggs using a 1 mm window and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to inject sperm onto an oviposited chicken oocyte as taught by Johnston through a 1 mm window in the shell as taught by Goldberg. The Office Action goes on to state that one of ordinary skill in the art at the time of the invention would have been motivated to inject sperm onto the oocyte while the oocyte was still in the shell using a 1 mm window to decrease the amount of change to the oocyte’s surroundings and to maintain the integrity of the egg. The Office Action states “the motivational statement is based on basic, non-scientific reasoning, i.e., injecting sperm through a hole in the shell would prevent the step of culturing the embryo in vitro and keep the embryo in its natural surroundings.”

The Office Action states that “the fertilized oocyte described by Johnston could be transferred to a shell and hatch because Johnston taught the fertilized oocyte proliferates. Therefore, without evidence to the contrary, the egg described by Johnston can hatch.” The Office Action goes on to state that the combined teachings of Johnston and Goldberg produce an

egg having the same structure described in the instant application.” See Office Action, page 10, paragraph 2.

The U.S. Patent and Trademark Office has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. See *In re Warner et al.*, 379 F.2d 1011, 154 U.S.P.Q. 173, 177 (C.C.P.A. 1967); *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598-99 (Fed. Cir. 1988). “It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” *Id.* Moreover, in rejecting a claim under 35 U.S.C. § 103, the Examiner must establish a *prima facie* case that: (i) the prior art suggests the claimed invention; and (ii) the prior art indicates that the invention would have a reasonable likelihood of success. See *In re Dow Chemical Company*, 837 F.2d 469, 5 U.S.P.Q.2d 1529 (Fed. Cir. 1988). In order for a reference to be effective prior art under 35 U.S.C. § 103, it must provide a motivation whereby one of ordinary skill in the art would be led to do that which the appellant has done. See *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed. Cir. 1983). “One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.” *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988). “When the references cited by the examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and will be overturned.” *In re Deuel*, 51 F.3d 1552, 1557, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995) (citing *Fine*, 837 F.2d at 1074).

Claim 63 is canceled herein without prejudice, thereby rendering moot this rejection as it applies to this claim. Therefore, applicants respectfully request withdrawal of this rejection.

Claims 59, 64 and 65 are amended herein by adding the phrase, “wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed,” to more clearly define “native embryo.” Applicants also concede that the term “native embryo” does not include an embryo that develops from an oviposited oocyte removed from its shell and put into culture medium.

The Office Action alleges that the suggestion to combine prior art teachings can be found in the cited references. However, the present rejection does not find the required suggestion in either source. In fact, Johnston, as shown below, actually teaches away from the claimed invention. Moreover, Johnston teaches away from Goldberg. Therefore, a person of skill would

have no reason to combine the references to make the claimed invention, and there would certainly be no expectation of successfully making the claimed invention. Nowhere has it been shown or argued that those of ordinary skill in the art had any general knowledge relevant to activating, for example by fertilization, an unfertilized oviposited (laid) avian egg from which a live chick can hatch.

The Office Action errs when it alleges that “the oviposited oocyte is equivalent to an oviposited chicken egg as claimed.” See Office Action, page 8, last paragraph. Johnston (“In Vitro Sperm Binding, Penetration, and Fertilization of Recently Oviposited Chicken Eggs,” Thesis, Graduate School of Clemson University, December, 1998) (Reference “AM,” cited in Form PTO 1449 of the Information Disclosure Statement) corresponds to and elaborates on the cited abstract. Johnston teaches the “fertilization” of an ovum after it has been removed from the shell of an egg and after the ovum has been separated from both thin and thick albumen. Johnston also teaches that the blastodisc area of the ovum, after removal from the shell, was wiped clean to get rid of any adherent albumen that would act as a mechanical barrier to prevent sperm from reaching and penetrating the OPL to fertilize the ovum. After the albumen was removed, the OPL was hydrolyzed with 0.01 N HCl to facilitate sperm penetration of the OPL and fertilization of the ovum. Further, Johnston teaches that the *in vitro* fertilized oocytes were subsequently cultured in a medium of thin egg albumen and sterile PBS. Thus, Johnston teaches an oocyte, devoid of thin and thick albumen, removed from a shell. This composition of matter is structurally very different from the claimed invention.

Johnston removed the ovum from the shell and removed all albumen from the ovum in order to have direct access to the OPL to be able to hydrolyze it with 0.01 N HCl to facilitate sperm penetration of the OPL to allow fertilization to occur. In Johnston, the thin and thick albumen were removed from around the *in vitro* ovum to expose the ovum to sperm as would occur in natural fertilization in a hen’s oviduct.

It is clear that Johnston was going through many complicated and time-consuming steps. In the process, Johnston created a very different composition of matter from the claimed invention. Clearly, these steps were undertaken by Johnston because Johnston believed the steps were necessary to obtain fertilization and a hoped-for live chicken. Johnston would have undertaken applicants’ much simpler process and resulting more nearly natural composition had

Johnston believed that an embryo could be fertilized without their complicated process and the resulting different composition.

Thus, Johnston does not teach the claimed oviposited avian egg from which a live chick can hatch, comprising a shell and a native embryo, wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed, and wherein the embryo has fewer than 30,000 cells and can develop in the shell and hatch as a live chick. Instead, Johnston created a complicated composition of matter comprising an *in vitro* fertilized ovum, removed from the shell and devoid of thin and thick albumen, that was treated by hydrolysis of the OPL with 0.01 N HCl and cultured *in vitro* in medium of thin egg albumen and sterile PBS.

The pending claims also require that the embryo has fewer than 30,000 cells and can develop in the shell and hatch as a live chick. The Office Action states that the embryos created by Johnston can hatch as a live chick. This conclusion is not supported by any of the art cited in the Office Action. The art cited in the Office Action specifically does not support this notion since Johnston, as is clear from the Johnston Thesis, was only able to create very early *in vitro* embryos when the goal was to create and develop avian embryos. Indeed, the Johnston abstract states “[w]e are developing a system to *in vitro* fertilize, and develop avian embryos from recently oviposited eggs” (emphasis added). The Johnston abstract and the Johnston Thesis on pages 39-43 and Table 3 show that Johnston was only able to create very early embryos that ceased to develop. Thus, there would be no motivation to place the developmentally dead embryo back into its native shell. Indeed, Johnston’s lack of success after going through many steps to obtain fertilization actually teaches away from using their method with Goldberg as one would not expect success. This is in contrast to applicants’ claimed invention where the embryos develop in the shell and hatch as a live chick.

Goldberg is a reference related to the study of cardiac teratogenicity of dichloroethylene in a chick model. Goldberg discloses something completely different from the claimed invention. This reference does not teach, suggest or motivate a person of skill to activate an oviposited, unfertilized avian egg in a shell to produce an early developmental embryo with a reasonable expectation of success. In fact, the reference does not mention sperm or other means of activation at all. Goldberg was studying the effect of various chemicals on the development

of embryos within an egg and did not even contemplate injecting sperm into an egg. Thus, Goldberg adds nothing to cure the deficiencies of Johnston.

A person of skill in the art would not be motivated to combine the teachings of Johnston and Goldberg to make the claimed invention with a reasonable expectation of success. Johnston teaches removing an unfertilized oocyte from the shell of an oviposited egg and placing the oocyte into a weigh boat. Johnston also teaches removing all of the thin and thick albumen from the oocyte to allow chemical disruption of the OPL with 0.01 N HCl and unimpeded access of sperm to penetrate the OPL to fertilize the oocyte. Goldberg teaches injecting chemicals into an egg through the shell and does not teach removing the contents of the oviposited egg from the shell. A person of skill in the art would not read Johnston and Goldberg together and have any motivation or a reasonable expectation of success that injecting a substance, even *arguendo* sperm, onto an oocyte could possibly produce an egg, comprising a shell and a native embryo, wherein the native embryo is an embryo that develops and hatches in the same shell in which the female pronucleus was formed, and wherein the embryo has fewer than 30,000 cells and can develop in the shell and hatch as a live chick. Indeed, as noted above, even after great efforts to modify the ovum, Johnston failed to achieve an embryo capable of forming a live chick. Thus, there would be no motivation to try fertilization in a shell without all the modifications to the ovum taught by Johnston.

Not only does Johnston teach away from Goldberg because it teaches removing the oocyte from the shell, but also Johnston teaches away from the claimed invention. As noted above, Johnston teaches a totally different structure from the claimed invention. The *in vitro* oocyte of Johnston lacks a shell and thin and thick albumen which were removed in order to allow sperm to reach the OPL. Johnston removed the shell and albumen in order to fertilize the ovum. In contrast, the claimed invention derives from the surprising discovery that the simpler process of injecting sperm through a shell can lead to fertilization of an ovum with successful hatching of a live chick.

Neither Johnston nor Goldberg, alone or in combination, suggests producing the claimed invention. Only with the knowledge of the present invention and impermissible hindsight can a rejection of claims 59-62 and 64-65 be made on the basis of obviousness. Thus, the Office

Action fails to make a *prima facie* case for obviousness; therefore, these rejections are improper and should be withdrawn.

Applicants have created an innovative composition of matter, *i.e.*, a developmentally early native avian embryo with characteristics that were desired but not accomplished or suggested by the art. Indeed, the claimed novel composition is efficiently derived and results in an efficient breeding method that can revolutionize poultry breeding processes. Moreover, the large number of early embryos in their respective shells that can be produced by the methods associated with the claimed invention can also be utilized for high throughput transgenesis. In other words, the compositions of this invention can be created in large numbers and, thus, can be engineered in large numbers to produce a desired transgenic bird. Thus, the invention provides major advantages to the poultry industry that were desired but unobtainable from prior art methods. Applicants, therefore, respectfully request that these rejections be withdrawn and that amended claims 59, 64 and 65 and dependent claims 60-62 be allowed.

Double Patenting

Claim 64 is objected to under 37 C.F.R. § 1.75 as allegedly being a substantial duplicate of claim 63. Claim 63 is canceled herein without prejudice, thereby rendering moot this objection. Therefore, applicants respectfully request withdrawal of this objection and allowance of amended claim 64.

Pursuant to the above amendments and remarks, reconsideration and allowance of the pending claims are believed to be warranted, and such action is respectfully requested. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of this application to issuance.

ATTORNEY DOCKET NO. 23101.0003U1
Application No. 09/784,575

A Credit Card Payment Form PTO-2038 authorizing payment in the amount of \$760.00 (\$510.00 fee for a three (3) month extension of time and \$250.00 fee for a Notice of Appeal), a Request for Extension of Time and a Notice of Appeal from the Primary Examiner to the Board of Patent Appeals and Interferences are enclosed. This amount is believed to be correct; however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,

NEEDLE & ROSENBERG, P.C.

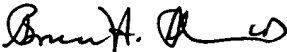


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